

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A temperature adjustment apparatus for adjusting temperature of ~~an a reflective~~ optical member, ~~the temperature adjustment~~ said apparatus comprising:

a first radiation mechanism, ~~including which includes~~ a first radiation member, to adjust temperature of the reflective optical member, said first radiation member and a reflective area of the reflective optical member radiating heat to each other to transfer radiation heat between a predetermined area of the optical member and for adjusting the temperature of the optical member with the first radiation member; and

a shielding member to shield heat radiation which travels from said first radiation member toward an area different from the reflective area for reducing radiation heat that transfers to areas other than the determined area among the radiation heat from the first radiation member.

2. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, wherein ~~the~~ emissivity of ~~the~~ said shielding member is less than 0.1 or more than 0.9.

3. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, wherein ~~the~~ said shielding member functions as a stop to limit incidence light to the reflective optical member.

4. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, wherein ~~the~~ said shielding member has a shape to cover is cylinder shape, and a side of a space between the reflective optical member and the said first radiation member ~~is covered~~.

5. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, further comprising a temperature adjustment mechanism to adjust ~~for adjusting~~ a temperature of the said shielding member.

6. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, further comprising a support member to support said shielding member independently of the reflective optical member ~~wherein the optical member and the shielding member are supported by mutually different support members~~.

7. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, wherein ~~the optical member is a reflection member, and~~
~~the~~ said first radiation mechanism is arranged opposite to a reflective surface ~~reflection~~ ~~plane~~ of the reflective optical member.

8. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim 1, wherein
a radiation surface plane of the said first radiation member ~~plate~~ ~~opposite to the~~ ~~predetermined area~~ has a shape concave toward the reflective area shape, and

~~and a curvature radius~~ curvature of the radiation surface plane is not shorter than a distance between a ~~the same as distance of~~ center of the radiation surface plane and a center of the predetermined area or longer than the distance of center of the radiation plane and center of the predetermined reflective area.

9. (Currently Amended) ~~A A-temperature adjustment~~ An apparatus according to claim 7, further comprising a second radiation mechanism, including with a second radiation member, to adjust temperature of the reflective optical member, said second radiation member and a surface of an opposite side of the reflective surface of the reflective optical member radiating heat to each other that is opposite to another side of the reflection plane of the reflection member, for adjusting the temperature of the optical member by the second radiation member.

10. (Currently Amended) ~~A-temperature adjustment~~ An apparatus according to claim 1, wherein ~~the~~ said shielding member is arranged ~~designed~~ to cover at least a periphery part of the reflective optical member.

11. (Currently Amended) ~~A-temperature adjustment~~ An apparatus according to claim 1, wherein said first radiation mechanism further comprises comprising:

a temperature detector to detect for detecting a temperature of the reflective optical member; and

a temperature adjusting member to adjust temperature of said ~~controller for controlling~~
~~the first radiation member mechanism based on the~~ a detection result by said ~~from the~~
temperature detector.

12. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim
1, wherein said temperature adjusting mechanism comprises ~~further comprising~~ a channel for a
cooling medium ~~to flow through for adjusting temperature of the first radiation member.~~

13. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim
1, wherein said temperature adjusting mechanism comprises ~~further comprising~~:

a Peltier element to adjust temperature of said ~~located on the other side of the optical~~
~~member of the first radiation member~~[[,]]

a radiator block ~~located on the other side of the Peltier element and the first radiation~~
~~member; and~~

a controller ~~for adjusting the temperature of the first radiation member by adjusting~~
~~current through the Peltier element.~~

14. (Currently Amended) ~~A temperature adjustment~~ An apparatus according to claim
13, further comprising a radiator block for said Peltier element, and a channel located in the
~~radiator block,~~ for a cooling medium to flow through said ~~to keep the temperature of the radiator~~
block substantially constant.

15 (Canceled)

16. (Currently Amended) An exposure apparatus for exposing an object to light, said apparatus comprising:

an optical system, including a reflective ~~with an~~ optical member, for directing leading light from a light source to the ~~an~~ object,

a first radiation mechanism, including with a first radiation member to adjust temperature of said reflective optical member, said first radiation member and a reflective area of said reflective optical member radiating heat to each other ~~transfer the radiation heat between a predetermined area of the optical member and for adjusting the temperature of the optical member by the first radiation member;~~ and

a shielding member to shield heat radiation which travels from said first radiation member toward an area different from the reflective area ~~for reducing radiation heat transfers to an area other than the determined area among the radiation heat from the first radiation member.~~

17. (Currently Amended) An exposure apparatus according to claim 16, wherein the light from the light source is EUV light, and

an said reflective optical element is arranged in a vacuum ~~on an optical path from the light source to the object is all reflection type optical element, and~~

~~atmosphere of a space where the optical member is stored is a vacuum or filled with helium gas.~~

18. (Canceled)

19. (Currently Amended) A ~~device fabrication~~ method of fabricating a device, said method comprising the steps of:

exposing an object to light using an exposure apparatus as defined in claim 16; and

developing the exposed object, and

processing the developed object to fabricate the device

~~performing a development process for the object exposed,~~

~~wherein the exposure apparatus includes:~~

~~an optical system, with an optical member, for leading light from a light source to an object,~~

~~a first radiation mechanism with a first radiation member to transfer radiation heat between a predetermined area of the optical member and for adjusting the temperature of the optical member by the first radiation member; and~~

~~a shielding member for reducing radiation heat transfers to an area other than the determined area among the radiation heat from the first radiation member.~~

20. (Currently Amended) ~~A stop~~ An apparatus comprising:

an optical member; and

a stop to limit, ~~arranged at an incidence side of an optical member for limiting incidence light to said the~~ optical member,

wherein the emissivity of said the stop is less than 0.1 or more than 0.9.

21. (Currently Amended) An exposure apparatus for exposing an object to light, said apparatus comprising:

an optical system, including with an optical member, for directing leading light from a light source to the an object[[,]]; and

a stop to limit, ~~arranged at an incidence side of the optical member for limiting incidence~~ light to said the optical member,

wherein ~~the~~ emissivity of said the stop is less than 0.1 or more than 0.9.

22. (Currently Amended) A ~~device fabrication~~ method of fabricating a device, said method comprising the steps of:

exposing an object to light using an exposure apparatus as defined in claim 21; ~~and~~
developing the exposed object, and

processing the developed object to fabricate the device

~~performing a development process to the object exposed~~,

~~wherein the exposure apparatus includes:~~

~~an optical system, with an optical member, for leading light from a light source to an~~
~~object,~~

~~a stop, arranged at an incidence side of the optical member for limiting incidence light to~~
~~the optical member,~~

~~wherein the emissivity of the stop is less than 0.1 or more than 0.9.~~

23. (Currently Amended) An exposure apparatus for exposing an object to light, said apparatus comprising:

an optical system, including a reflective ~~with an~~ optical member, for directing leading light from a light source to an object,

a first radiation mechanism, including with a first radiation member, to adjust temperature of said reflective optical member, said first radiation member and a reflective area of said reflective optical member radiating heat to each other; and to transfer the radiation heat between a predetermined area of the optical member and for adjusting temperature of the optical member by the first radiation member,

a shielding member to shield heat radiation which travels from said first radiation member toward an area different from the reflection area; for reducing radiation heat transferred to an area other than the determined area among the radiation heat from the first radiation member,

a temperature detector to detect mechanism for detecting the temperature of the reflective optical member; and

a temperature adjusting mechanism to adjust temperature of said controller mechanism for controlling the first radiation member mechanism based on the a detection result by said from the temperature detector mechanism.

24. (Currently Amended) An exposure apparatus according to claim 23, wherein the controller said temperature adjusting mechanism adjusts the temperature of the optical said first radiation member further based on the detection result and an exposure schedule to be performed by said apparatus that exposes object.

25. (Currently Amended) An exposure apparatus according to claim 23, wherein said temperature adjusting mechanism comprises: further comprising;

a Peltier element to adjust temperature of said ~~located on the other side of the optical member of the first radiation member,~~

a radiator block for said ~~located on the other side of the Peltier element; and the first radiation member,~~

a channel ~~located in the radiator block for a cooling medium to flow through and keep the temperature of the~~ said radiator block substantially constant, and

~~a controller for adjusting the temperature of the first radiation member by adjusting current flow through the Peltier element.~~

26. (Currently Amended) A ~~device fabrication method~~ of fabricating a device, said method comprising the steps of:

exposing an object to light using an exposure apparatus as defined in claim 23; and
developing the exposed object, and

processing the developed object to fabricate the device

~~performing a development process to the object exposed;~~

~~wherein the exposure apparatus includes:~~

~~an optical system, with an optical member, for leading light from a light source to an object;~~

~~a first radiation mechanism with a first radiation member that transfers the radiation heat between a predetermined area of the optical member and for adjusting temperature of the optical member by the first radiation member;~~

~~a shielding member for reducing radiation heat transferred to an area other than the determined area among the radiation heat from the first radiation member;~~

~~a temperature detector mechanism for detecting the temperature of the optical member;~~
~~and~~
~~a controller mechanism for controlling the first radiation mechanism based on the~~
~~detection result from the temperature detector mechanism.~~